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27 September 1961

NRO REVIEW COMPLETED

PHOTOGRAPHIC EVALUATION REPORT

Mission No: 9023 Photo Date: 30 August 1961 Evaluation No. FE 91-61  
Camera No: 54 Filter, Main: W21 Filter, Horizon: W25  
Film Type: J 23-7600 Evaluated by: CL

1. Shutter Operation:
  - a. Port horizon - Good
  - b. Starboard horizon - Good
2. Slit Operation (main): 0.20" - Good
3. Camera Number (Image Quality): illegible, of intermittent and variable exposure - coincident with digitote exposure.
4. Digitote Operation: Digitote functioned intermittently on the first seven passes. Digitote exposed intermittently on all passes but passes 23 and 24 where it was exposed on every frame. The tenth of a second digit was difficult to read throughout the mission.
5. Film Metering: Normal
6. Film Tracking: Film mistracked on pass 26, frame 11 jumping the trailing edge rail thus throwing the rest of the frames in the mission out of focus. Mission ended on pass 26, frame 25 probably due to this malfunction.
7. Timing Pulses: Pulses were blurred, indistinct circles which disappeared whenever film had any density. One count indicated 82 pips on a frame.
8. Shrinkage Markers: None
9. Fiducials:
  - a. Main camera - fiducials were ragged and truncated throughout the mission.
  - b. Horizon cameras - fiducials were exposed intermittently and with varying intensity - not coincident with camera number and digitote exposure problems.
10. Flare: Possible reflections from within the camera show upon first and last frames of every pass.
11. Light leaks: Heavily fogged frames were noted at the beginning and end of every pass. Light leaks were also noted emanating from the trailing edge of pass 06, frames 131, 181 to 205. A total of 105 frames were degraded due to light leaks and reflections throughout the mission.
12. Forward Overlap: There was no overlap on the majority of the passes. Passes going below the 47th parallel contained some overlap on the last frames.
13. Static Electricity: Very little
14. Pinholes: Few except for pass OE which contained a considerable number.
15. Abrasions and Scratches:
  - a. Produced in processing pass 08, frames 05-46; pass 21, frames 186-225.
  - b. Of undetermined origin pass OE, frames 03, 07; pass 02, frames 01, 02, 07, 23; pass 03, frames 11, 44; pass 05, frames 34, 99; pass 06, frame 06; pass 08, frames 50, 90-110, 116-144, 157, 164, 192; pass 09, frames 82, 130; pass 18, frames 02-25; pass 19, frames 01-120; pass 20, frame 03; pass 21, frames 34-38; pass 22, frames 158, 204, 205, 225; pass 23, frames 70, 190, 233; pass 24, frame 166; pass 26, frames 01-25.

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16. Tearing: Pass 26, frames 06-25. Portions of pass 26, frames 17, 19, 25 missing.
17. Processing Streaks: Light desensitized streak, possibly originating from a camera idiosyncrasy, was noticed on pass 01, frames 24-34, 50; pass 02, frames 25-43; pass 03, frames 56, 59, 60; pass 05, frames 03, 15, 17, 18, 21, 45, 95-108. Dark streak noted on pass 06, frames 140-146.
18. Pressure Marks: None
19. Water Marks: Water streaks and stains were abundant, showing up as concentric ovals of white deposits on the emulsion side of the film, usually one pattern to a frame, covering an area  $\frac{1}{2}$ " by 2  $\frac{3}{4}$ ". Example pass 07, frames 88, 130.
20. Blistering and Frilling: Few blisters, no frilling.
21. Density: Medium 75%, heavy 25%.
22. Contrast: Medium 75%, low 25%.
23. Apparent Resolution: Generally better than previous missions and showing greater potential than was produced in this mission.
24. Apparent Granularity: Very fine.
25. Photo Quality: Fair 30%, good 70%
  - a. Degradation due to out of focus areas within the format, density, light leaks and water stains.
26. Camera Operation: Fair
  - a. Degradation due to flat horizon photos, indistinct timing pips, erratic camera number and digitote, erratic horizon camera fiducials, portions of main format out of focus, light leaks at beginning and end of passes, erratic end of pass indicator, blunted fiducials in main format, collected dust along leading edge of format. Mistrack and probable total camera malfunction on pass 26, frame 25.
27. Suitability for PI: Poor 10%, fair 30%, good 50%, very good 10%. Percentages pertain only to areas where some imagery could be identified.
  - a. Degradation due to image motion, out of focus areas, lack of overlap, gaps in coverage, haze and cloud shadows, density.

Remarks:

1. An average pitch of  $1^{\circ}$  and roll of 0 to  $2\frac{1}{2}^{\circ}$  was noted throughout the mission. Roll appeared greatest at the time camera was turned on.
2. Degraded areas, that appeared out of focus, were noted on every frame of photography. The pattern usually appeared as follows: the leading edge was very sharp for approximately  $\frac{1}{8}$ ", then an area of degradation approximately  $\frac{1}{2}$ " wide was observed gradually becoming sharper towards the trailing edge. The band of degradation occasionally affected most of the format area, but an area of sharp focus could always be observed along the western-most edge of the format as well as an area extending approximately 6" into the format from this edge and extending 1" in from the trailing edge of the film.
3. The end of pass markers were overexposed and covered a small portion of the main format.
4. The end of pass markers were erratic, showing up occasionally at the beginning of a pass as well as at the end. On pass 05, frame 108 two end of pass markers were observed.
5. Several small desensitized spots were noted throughout the mission. Occasionally a desensitized streak was noted in the horizon cameras.

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6. Image motion streaked images in the direction of flight throughout the mission.
7. The camera number occasionally overexposed and bloomed into the format area.
8. Several small specks of spattered lacquer were noted on a few frames. A little bleeding of lacquer from the titling into the format was noted.
9. Titling on pass 09, frame 82 blurred.
10. Titling occurred within format area was erased and retitled on pass 08, frames 72, 73; pass 22, frame 267; pass 23, frames 167, 173, 174, 202-205.
11. Fingerprints were noted on pass 07, frame 116; pass 22, frame 267; pass 23, frames 173, 192; pass 25, frame 156; pass 26, frames 15, 16, 20, 25.
12. Creases were noticed on pass 01, frames 12, 52; pass 02, frame 14; pass 07, frame 129; pass 08, frame 104; pass 15, frame 11; pass 18, frame 02; pass 19, frame 01; pass 23, frames 173, 185; pass 24, frame 116. Along trailing edge pass 26, frames 11-25.
13. Crimping
  - a. Indiscriminate pass 01, frames 24, 25, 36; pass 03, frames 53, 54, 65, 67, 71, 72, 74; pass 05, frames 66, 71; pass 06, frame 169; pass 22, frames 203, 204.
  - b. Along trailing edge pass 09, frames 01-22, 44; pass 26, frames 01-25.
14. Heavy yellow stains from salt water were noticeable from pass 21 to pass 26.
15. Foreign matter noted on pass 05, frame 94; pass 09, frames 75-80.
16. Miscellaneous stains pass 0E, frame 01; pass 03, frames 69, 71; pass 18, frame 53; pass 20, frames 01, 19, 45; pass 23, frames 9, 10, 184; pass 25, frame 65.
17. Small bits of emulsion lifted from pass 01, frame 17; pass 02, frame 30; pass 03, frames 40, 49; pass 05, frames 80, 81, 82; pass 06, frames 01, 89; pass 24, frames 127, 128, 129, 150, 151, 162, 164. All frames in passes 25 and 26.
18. Emulsion scraped off from trailing edge pass 06, frames 1-14, 18-150; pass 26, frames 1-25.
19. Manufacturing splices noted on pass 18, frame 53; pass 23, frame 233.